

From: "Julie Lewis"
To: Edward Hanlon/DC/USEPA/US@EPA
Date: 12/01/2012 11:07 PM
Subject: EPA hydraulic fracturing study panel

Dear Mr. Hanlon,

I am writing to support the nomination of Dr. Scott Cline to the EPA HF Panel. Dr. Cline is very knowledgeable and balances development with safety at all times. He has been an early advocate of closed-loop drilling, among other things, and has made himself available to share his expertise with those desiring to learn more about HF processes. He has a great educational background and degrees to back up his skills, and would be an asset to your panel.

I would also oppose the nomination of Dr. Bernard Goldstein who has seemingly formed an opinion about health risks regarding HF without any evidence, and wants money to study it in his field (from The Society of Toxicology website http://www.toxicology.org/ai/news/news_archive.asp).

Goldstein noted that the overall theme of his testimony is that, "It is in the nation's and in industry's best interests to maximize the yield of natural gas while minimizing the short-term and long-term environmental and public health costs," and urged the committee to address the possibility of adverse public health impacts associated with unconventional gas drilling. Pointing to research he conducted of those who testified against drilling to the Natural Gas Subcommittee of the Secretary of Energy's Scientific Advisory Board, he noted that about two-thirds cited health concerns. He went on to say that the public's concerns about potential health effects is legitimate, noting that there are many agents of toxicological concern in the fracking mixture and "many other agents about which we know too little." He also pointed out that as far as he knows, there is no study underway which thoroughly explores exposures and outcomes related to unconventional gas drilling activities. He said, based on his experience as a doctor and a toxicologist, "there is genuine cause for concern and the current lack of almost any support for research directly related to the health effects of unconventional gas drilling is shortsighted and counterproductive." He went on to urge Congress to update certain mixtures studies by providing funding to apply modern toxicological advances to the chemical mixtures that are being used or result from hydraulic fracturing,...The most cost-effective time, and in fact, the only cost-effective time to make this investment is now rather than to wait until the inevitable clamor for such research when diseases begin to appear that are associated with natural gas drilling activities."

Many people claim health issues as a result of drilling, but a real researcher doesn't base his research on hearsay of people opposed to drilling, and form his opinion ahead of time. Goldstein wants study money now so that "when diseases begin to

**appear that are associated with natural gas drilling activities," his research can say,
"I told you so."**

Respectfully submitted,

Julie Lewis
Broome County (NYS) Legislator
District 6

From: "Mordick, Briana"
To: Edward Hanlon/DC/USEPA/US@EPA
Date: 12/19/2012 08:31 PM
Subject: NRDC Comments on the List of Candidates for the EPA SAB Hydraulic Fracturing Advisory Panel

Dear Mr. Hanlon,

Please find attached comments by the Natural Resources Defense Council on the List of Candidates for the EPA Science Advisory Board Hydraulic Fracturing Advisory Panel. We appreciate the opportunity to provide feedback and thank you for your consideration of these comments.

Sincerely,
Briana Mordick

Briana Mordick
Staff Scientist
Natural Resources Defense Council
111 Sutter St, 20th Floor
San Francisco, CA 94104
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(e) bmordick@nrdc.org
blog: <http://switchboard.nrdc.org/blogs/bmordick/>



SAB-Panel_19Dec12.pdf

NRDC-Comments_EPA-HF-Study-

NRDC Comments on the List of Candidates for the EPA Science Advisory Board Hydraulic Fracturing Advisory Panel, December, 2012 1
December 19, 2012
Edward Hanlon
Designated Federal Officer
EPA Science Advisory Board Staff Office (1400F)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460
Comments on the List of Candidates for the
EPA Science Advisory Board Hydraulic Fracturing Advisory Panel

Dear Mr. Hanlon,

The following comments are being submitted on behalf of the Natural Resources Defense Council (NRDC). NRDC is a national, non-profit legal and scientific organization with 1.3 million members and activists nationwide. Since its founding in 1970, NRDC has been actively involved in a wide range of environmental issues, including oil and gas exploration and production as well as drinking water protection. NRDC is currently actively involved in issues surrounding oil and gas development and hydraulic fracturing. NRDC greatly appreciates the effort that the U.S. Environmental Protection Agency (EPA) has dedicated, and plans to devote in the future, to investigate the potential public health and environmental protection issues associated with hydraulic fracturing. In particular we note the steps the agency has taken to ensure maximum public input and transparency.

NRDC strongly supports the selection criteria established by the EPA for nominees to the Panel, including: (a) scientific and/or technical expertise, knowledge, and experience; (b) availability and willingness to serve; (c) absence of financial conflicts of interest; (d) absence of appearance of a lack of impartiality; (e) skills working in committees, subcommittees and advisory panels; and, for the Panel as a whole; (f) diversity of expertise and viewpoints. With these criteria in mind, NRDC respectfully submits the following comments on the nominated candidates.

Nominees with financial conflicts of interest and an appearance of lack of impartiality should be excluded

In keeping with the criteria established by EPA itself, we urge EPA to select panel members who have no financial conflicts of interest and are impartial, and to exclude any nominees without those qualifications. It is essential that any nominees be independent, free from any biases, and committed to pure scientific inquiry. NRDC Comments on the List of Candidates for the EPA Science Advisory Board Hydraulic Fracturing Advisory Panel, December, 2012 2

These criteria ensure nominees who are dedicated to the public interest as well as to the mission of the EPA. The Agency cannot accomplish its vital mission or fulfill its legal duty if its regulatory priorities and environmental concerns are influenced by people who have a financial stake in the outcome.

The recommendations of this SAB Panel are likely to impact federal and/or state regulation of hydraulic fracturing. Yet in general, the oil and gas industry opposes any regulations that strengthen protections of health and the environment due to financial priorities and has not supported independent scientific inquiry into these issues. The Panel, therefore, must be composed in a manner that ensures that this perspective does not influence scientific decisions. Thus, nominees affiliated with industry or receiving industry support are unfit to provide EPA with robust independent scientific advice.

By law, EPA committees must be composed in order to ensure that industry bias is publicly disclosed, minimized, and eliminated if possible. The Federal Advisory Committee Act (FACA) imposes requirements on agencies when they establish or utilize any advisory committee, defined as a group of individuals, including at least one non-federal employee, which provides collective advice or recommendations to the agency. 5 U.S.C. App. II, § 3(2). When an agency seeks to obtain such advice or recommendations, it must ensure the advisory committee is "in the public interest," *id.* App. II, § 9(2), is "fairly balanced in terms of points of view represented and the function to be performed,"

id. § 5(b)(2), and does not contain members with inappropriate special interests. Id. § 5(b)(3).

EPA invited comments on any nominees that had relevant expertise and willingness to serve on the panel. EPA, however, did not omit nominees that failed to meet its other criteria, particularly the absence of financial conflicts of interest and the absence of an appearance of a lack of impartiality. Some nominees are clearly ineligible for service on the Panel due to financial conflicts and should have been omitted. It is unreasonable to expect the public to develop informative and researched comments on 144 nominated panel members in such a short period of time when in fact only a very small number of them will be selected to serve on the panel. Since EPA will be reviewing their confidential disclosure forms and have additional information that is not available to the public, this screening should have been done before publishing the list for comment. We are additionally concerned that the conflicts of some members were not disclosed in the information provided in the biosketches.

The Panel must be composed of scientists who are able to provide a fair and complete review of all relevant data or issues. Regardless of technical and subject-matter expertise and relevant experience, individuals with financial conflicts should not be serving as members of the Panel when there are candidates without such conflicts. Industry representatives with such knowledge and expertise will still have opportunities to provide information relevant to the deliberations of the Panel NRDC Comments on the List of Candidates for the EPA Science Advisory Board Hydraulic Fracturing Advisory Panel, December, 2012 3

during public comment and through the extensive stakeholder process devised by EPA, as will public interest and environmental organizations.

We object to the following individuals

With all due respect to their experience and knowledge, the following individuals cannot be considered impartial and/or are conflicted, and should not serve on this Panel, for the reasons provided here.

- Nominees who are currently employed by the oil and gas industry (operators, service companies, etc), and therefore do not meet the selection criteria for absence of financial conflicts of interest and absence of appearance of a lack of impartiality:

Armagost, Kenneth	Anadarko Petroleum Corporation
Bratton, Thomas	Schlumberger Technology Corporation
Buscheck, Timothy	Chevron Energy Technology Company
Daniels, Eric	Chevron Energy Technology Company
East, Loyd	Halliburton Energy Services
Ellison, Timothy	ExxonMobil Upstream Research Company
Hufford, Walter	Talisman Energy USA
Hyden, Ron	Halliburton Energy Services
Jester, Stephen	ConocoPhillips
King, George	Apache Corporation
Lynch, Keith Wilson	ConocoPhillips Company
Mamerow, Steve	Pioneer Natural Resources
Moos, Daniel	Baker Hughes
Nygaard, K.J.	ExxonMobil Production Company
Parkerton, Thomas	ExxonMobil Biomedical Sciences

Phillips, Richard	ExxonMobil Biomedical Sciences, Inc.
Smith, Bert	Chesapeake Energy Corporation
Smith, Joseph Patrick	ExxonMobil Upstream Research Company
Smith, Richard	Nabors Completion and Production Services
Street, Paul	Nalco
Vitthal, Sanjay	Shell Center of Excellence for Unconventional Resources
Ziegler, Victor	Occidental Petroleum Corporation

☐ Nominees who work as consultants for the oil and gas industry, and therefore do not meet the selection criteria for absence of financial conflicts of interest and may not meet the selection criteria for absence of appearance of a lack of impartiality:

Arthur, Daniel
 ALL Constultingi
 Bagawandoss, Kesavalu
 Accutest Laboratoriesii
 Coleman, Nancy Pees
 Environmental Consultantsiii
 Collins, James
 Independent Consultantiv
 Erb, James
 Independent Consultantv
 Fassett, Gordon
 HDR Engineering, Inc.vi
 Fontana, John
 Vista GeoScience LLCvii
 Hayes, Thomas
 Gas Technology Institute E&P Centerviii
 Kaback, Dawn
 AMEC Environment & Infrastructure, Inc.ix
 Malouta, Dean
 Independent Oil and Gas Consultantx
 Raja, Suresh
 Providence Engineering and Environmental
 Group, LLCxi
 Syed, Talib
 Independent Consultantxii
 Tintera, John James
 Sebree & Tinteraxiii
 Vitale, Rock
 Environmental Standards, Inc.xiv
 • Nominees who receive grant money from
 the oil and gas industry, and therefore do not
 meet the selection criteria for absence of
 financial conflicts of interest and may not

meet the selection criteria for absence of appearance of a lack of impartiality:

Burnett, David

Texas A&M University^{xv}

Davis, Thomas

Colorado School of Mines^{xvi}

Dunn-Norman, Shari

Missouri University of Science and Technology^{xvii}

Economides, Michael

University of Houston^{xviii}

Ensor, Katherine Bennett

Rice University^{xix}

Olson, Jon

University of Texas^{xx}

Reible, Danny

University of Texas^{xxi}

Tutuncu, Azra

Colorado School of Mines^{xxii}

• Other:

Almond, Stephen

MeadWestvaco

Barry, Terence

AquaMost

Cline, Scott Bradley

U.S. Internal Revenue Service

Curtright, Aimee

RAND Corporation

Klecka, Gary

Independent Consultant

Dr. Almond's current employer, MeadWestvaco, provides goods and services to the oil and gas industry^{xxiii}, and therefore he does not meet the selection criteria for absence of financial conflicts of interest and may not meet the selection criteria for absence of appearance of a lack of impartiality. Furthermore, as stated in his biosketch, Dr. Almond, "...worked for Halliburton for over 30 years..." and therefore may not meet the selection criteria for absence of appearance of a lack of impartiality.

Dr. Barry's current employer, AquaMost, provides services to the oil and gas

industry^{xxiv} and therefore he does not meet the selection criteria for absence of financial conflicts of interest and may not meet the selection criteria for absence of appearance of a lack of impartiality.

Dr. Cline has made public statements^{xxv} that indicate he may have preconceived conclusions about the potential impacts of hydraulic fracturing on drinking water and ground water, and therefore he does not meet the selection criteria for absence of a lack of impartiality.

As stated in her biosketch, Dr. Curtright, "...was the organizer and technical lead for a conference on the technical, legal, and regulatory challenges to using coal mine drainage for hydraulic fracturing, sponsored by the Marcellus Shale Coalition..."

According to their website, The Marcellus Shale Coalition "works with exploration and production, midstream, and supply chain partners in the Appalachian Basin and across the country to address issues regarding the production of clean, job-creating, American natural gas from the Marcellus and Utica Shale plays."^{xxviii}^{xxviii}^{xxvi} All 11 of the Marcellus Shale Coalition's executive board members are high-ranking oil and gas industry employees and its board is composed of 45 oil and gas companies. As such, Dr. Curtright may not meet the selection criteria for absence of financial conflicts of interest and absence of appearance of a lack of impartiality.

As stated in his biosketch, Dr. Klecka was employed by Dow Chemical Company for over 30 years. Dow Chemical Company manufactures chemicals used in the oil and gas industry.^{xxix} As such, Dr. Klecka may not meet the selection criteria for absence of financial conflicts of interest and absence of appearance of a lack of impartiality.

We support the nominations of the following individuals who have the requisite scientific and technical expertise, knowledge, and

experience, are free of conflict, and we believe to be impartial:

Bales, Jerad

U.S. Geological Survey

Bank, Tracy

University of Buffalo

Boufadel, Michel

New Jersey Institute of Technology

Boyer, Elizabeth

Pennsylvania State University

Brantley, Susan

Pennsylvania State University

Dzombak, David

Carnegie Mellon University

Finkel, Madelon

Cornell University

Goldstein, Bernard

University of Pittsburgh

Goode, Daniel

U.S. Geological Survey

Henretig, Fred

University of Pennsylvania

Howarth, Robert

Cornell University

Ingraffea, Anthony

Cornell University

McKenzie, Lisa

Colorado School of Public Health

Muehlenbachs, Karlis

University of Alberta

Murdoch, Lawrence C.

Clemson University

Murphy, Eileen

Rutgers University

Paulson, Jerome

George Washington University

Ryan, Joseph

University of Colorado

Saiers, James

Yale University

Shapiro, Allen

U.S. Geological Survey

Swackhamer, Deborah

University of Minnesota

Thyne, Geoffrey

Science Based Solutions

VanBriesen, Jeanne
Carnegie Mellon University
Vengosh, Avner
Duke University
Williams, Mark
University of Colorado

At this time, we are neutral to all prospective nominees not listed above. These other nominees appear to be qualified, non-conflicted and impartial, but we do not have sufficient information to comment on their nominations at this time.

Thank you for your consideration of these comments.

Respectfully,
Briana Mordick
Staff Scientist
Natural Resources Defense Council
111 Sutter Street, 20th Floor
San Francisco, CA 94104

i <http://www.all-llc.com/page.php?11>

ii <http://www.accutest.com/who-we-serve-petroleum-oil-and-gas.htm>; As stated in his biosketch, Dr. Bagawandoss also serves as a member of the Marcellus Shale Coalition (see comments on Dr. Curtright).

iii See, e.g. projects with Chesapeake Energy:

<http://nemc.us/docs/2012/presentations/Tue-PM-ShaleGas-NancyColeman-8-7-12.pdf>,
http://www.gwpc.org/sites/default/files/event-sessions/Coleman_Nancy.pdf

iv As stated in his biosketch, Mr. Collins is a consultant to the oil and gas industry.

v As stated in his biosketch, Mr. Erb is a consultant to the oil and gas industry.

vi
<http://www.hdrinc.com/markets/energy/oil-and-gas>

vii
<http://www.vistageoscience.com/exp/index.php?page=scl>

viii
<http://www.gastechnology.org/Expertise/Pages/SupplyExpertise.aspx>

ix

http://www.amec.com/sectors/oil_and_gas/oil_and_gas.htm

x As stated in his biosketch, Mr. Malouta is currently a contract employee for Shell Oil and his research has been supported by funding from Shell Oil.

xi

<http://www.providenceeng.com/P/Industries/>

xii As stated in his biosketch, Mr. Syed is a consultant to the oil and gas industry.

xiii

<http://www.fwbusinesspress.com/main.asp?SectionID=9&SubSectionID=34&ArticleID=19035>

xiv

<http://www.fwbusinesspress.com/main.asp?SectionID=9&SubSectionID=34&ArticleID=19035>

xv The Global Petroleum Research Institute (GPRI) administers research funded by 12 major oil and gas companies: Anadarko, BP, BHP Billiton, Chevron, ConocoPhillips, ExxonMobil, Marathon, Shell, Statoil, and Total. According to its website,

“...membership is open to any qualifying entity, with significant revenues from petroleum exploration and production activities...” <http://www.pe.tamu.edu/gpri-new/home/about.htm>

xvi The Colorado School of Mines (CSM) Reservoir Characterization Project (RCP) is an oil- and gas-industry sponsored research consortium, with current and/or past funding supplied by 55 oil and gas exploration and production companies and related service companies.

<http://geophysics.mines.edu/rcp/sponsors.html>

xvii As stated in her biosketch, Dr. Dunn-Norman has received research funding from the American Petroleum Institute.

xviii Dr. Economides is a former employee of Schlumberger, an industry leader in hydraulic fracturing services. The website of

the University of Houston states that his “research efforts involve the optimization of the overall hydrocarbon production system from the reservoir, the wellbore and to the market.”

<http://www.chee.uh.edu/faculty/economides#research>

The website of SCA: Subsurface Consultants and Associates, LLC states that Dr. Economides is Managing Partner of Dr. Michael J. Economides Consultants, Inc. with clients including national oil companies.

http://www.scacompanies.com/training_services/instructor_bios.html#mjeconomides

xix As stated in her biosketch, Dr. Ensor has received funding from the Korean National Oil Company

xx Dr. Olson is a former employee of Mobil. Dr Olson is a researcher and administrator of FRAC, the Fracture Research and Application Consortium, a research group at the University of Texas pursuing the goal of “Understanding and successfully predicting, characterizing, and simulating reservoir-scale structures”. FRAC is financially supported by 20 oil and gas industry companies, as listed on its website.

<http://www.beg.utexas.edu/frac/sponsors.php>

As stated in his biosketch, Dr. Olson has received contracts for research from Shell and ExxonMobil Corporations.

xxi As stated in his biosketch, Dr. Reible has received funding from Chevron.

xxii As stated in her bio sketch, Dr. Tutuncu is a former employee of Shell and has received research funding from ExxonMobil Corporation, Hess Oil Company, Chevron, Shell, ENI, Statoil, Talisman, Halliburton, Schlumberger, Pemex, PlusPetrol and Venoco.

xxiii

<http://www.meadwestvaco.com/SpecialtyChemicals/OilfieldChemicals/index.htm>

xxiv <http://www.aquamost.com/>

xxv See, e.g. <http://www.anga.us/media-room/videos/hear-our-voices/scott-cline>,
<http://eidmarcellus.org/blog/inexperienced-geologists-fracking-fantasies-obscurer-facts/6027/>

xxvi <http://marcelluscoalition.org/>

xxvii

<http://marcelluscoalition.org/about/executive-committee/>

xxviii

<http://marcelluscoalition.org/about/full-members/>

xxix <http://oilandgas.dow.com/>

December 19, 2012

Edward Hanlon
Designated Federal Officer
EPA Science Advisory Board Staff Office (1400F)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Comments on the List of Candidates for the
EPA Science Advisory Board Hydraulic Fracturing Advisory Panel

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NRDC greatly appreciates the effort that the U.S. Environmental Protection Agency (EPA) has dedicated, and plans to devote in the future, to investigate the potential public health and environmental protection issues associated with hydraulic fracturing. In particular we note the steps the agency has taken to ensure maximum public input and transparency.

NRDC strongly supports the selection criteria established by the EPA for nominees to the Panel, including: (a) scientific and/or technical expertise, knowledge, and experience; (b) availability and willingness to serve; (c) absence of financial conflicts of interest; (d) absence of appearance of a lack of impartiality; (e) skills working in committees, subcommittees and advisory panels; and, for the Panel as a whole; (f) diversity of expertise and viewpoints. With these criteria in mind, NRDC respectfully submits the following comments on the nominated candidates.

Nominees with financial conflicts of interest and an appearance of lack of impartiality should be excluded

In keeping with the criteria established by EPA itself, we urge EPA to select panel members who have no financial conflicts of interest and are impartial, and to exclude any nominees without those qualifications. It is essential that any nominees be independent, free from any biases, and committed to pure scientific inquiry.

These criteria ensure nominees who are dedicated to the public interest as well as to the mission of the EPA. The Agency cannot accomplish its vital mission or fulfill its legal duty if its regulatory priorities and environmental concerns are influenced by people who have a financial stake in the outcome.

The recommendations of this SAB Panel are likely to impact federal and/or state regulation of hydraulic fracturing. Yet in general, the oil and gas industry opposes any regulations that strengthen protections of health and the environment due to financial priorities and has not supported independent scientific inquiry into these issues. The Panel, therefore, must be composed in a manner that ensures that this perspective does not influence scientific decisions. Thus, nominees affiliated with industry or receiving industry support are unfit to provide EPA with robust independent scientific advice.

By law, EPA committees must be composed in order to ensure that industry bias is publicly disclosed, minimized, and eliminated if possible. The Federal Advisory Committee Act (FACA) imposes requirements on agencies when they establish or utilize any advisory committee, defined as a group of individuals, including at least one non-federal employee, which provides collective advice or recommendations to the agency. 5 U.S.C. App. II, § 3(2). When an agency seeks to obtain such advice or recommendations, it must ensure the advisory committee is "in the public interest," *id.* App. II, § 9(2), is "fairly balanced in terms of points of view represented and the function to be performed," *id.* § 5(b)(2), and does not contain members with inappropriate special interests. *Id.* § 5(b)(3).

EPA invited comments on any nominees that had relevant expertise and willingness to serve on the panel. EPA, however, did not omit nominees that failed to meet its other criteria, particularly the absence of financial conflicts of interest and the absence of an appearance of a lack of impartiality. Some nominees are clearly ineligible for service on the Panel due to financial conflicts and should have been omitted. It is unreasonable to expect the public to develop informative and researched comments on 144 nominated panel members in such a short period of time when in fact only a very small number of them will be selected to serve on the panel. Since EPA will be reviewing their confidential disclosure forms and have additional information that is not available to the public, this screening should have been done before publishing the list for comment. We are additionally concerned that the conflicts of some members were not disclosed in the information provided in the biosketches.

The Panel must be composed of scientists who are able to provide a fair and complete review of all relevant data or issues. Regardless of technical and subject-matter expertise and relevant experience, individuals with financial conflicts should not be serving as members of the Panel when there are candidates without such conflicts. Industry representatives with such knowledge and expertise will still have opportunities to provide information relevant to the deliberations of the Panel

during public comment and through the extensive stakeholder process devised by EPA, as will public interest and environmental organizations.

We object to the following individuals

With all due respect to their experience and knowledge, the following individuals cannot be considered impartial and/or are conflicted, and should not serve on this Panel, for the reasons provided here.

- Nominees who are currently employed by the oil and gas industry (operators, service companies, etc), and therefore do not meet the selection criteria for absence of financial conflicts of interest and absence of appearance of a lack of impartiality:

Armagost, Kenneth	Anadarko Petroleum Corporation
Bratton, Thomas	Schlumberger Technology Corporation
Buscheck, Timothy	Chevron Energy Technology Company
Daniels, Eric	Chevron Energy Technology Company
East, Loyd	Halliburton Energy Services
Ellison, Timothy	ExxonMobil Upstream Research Company
Hufford, Walter	Talisman Energy USA
Hyden, Ron	Halliburton Energy Services
Jester, Stephen	ConocoPhillips
King, George	Apache Corporation
Lynch, Keith Wilson	ConocoPhillips Company
Mamerow, Steve	Pioneer Natural Resources
Moos, Daniel	Baker Hughes
Nygaard, K.J.	ExxonMobil Production Company
Parkerton, Thomas	ExxonMobil Biomedical Sciences
Phillips, Richard	ExxonMobil Biomedical Sciences, Inc.
Smith, Bert	Chesapeake Energy Corporation
Smith, Joseph Patrick	ExxonMobil Upstream Research Company
Smith, Richard	Nabors Completion and Production Services
Street, Paul	Nalco
Vitthal, Sanjay	Shell Center of Excellence for Unconventional Resources
Ziegler, Victor	Occidental Petroleum Corporation

- Nominees who work as consultants for the oil and gas industry, and therefore do not meet the selection criteria for absence of financial conflicts of interest and may not meet the selection criteria for absence of appearance of a lack of impartiality:

Arthur, Daniel	ALL Constulting ⁱ
Bagawandoss, Kesavalu	Accutest Laboratories ⁱⁱ
Coleman, Nancy Pees	Environmental Consultants ⁱⁱⁱ
Collins, James	Independent Consultant ^{iv}
Erb, James	Independent Consultant ^v
Fassett, Gordon	HDR Engineering, Inc. ^{vi}
Fontana, John	Vista GeoScience LLC ^{vii}
Hayes, Thomas	Gas Technology Institute E&P Center ^{viii}
Kaback, Dawn	AMEC Environment & Infrastructure, Inc. ^{ix}
Malouta, Dean	Independent Oil and Gas Consultant ^x
Raja, Suresh	Providence Engineering and Environmental Group, LLC ^{xi}
Syed, Talib	Independent Consultant ^{xii}
Tintera, John James	Sebree & Tintera ^{xiii}
Vitale, Rock	Environmental Standards, Inc. ^{xiv}

- Nominees who receive grant money from the oil and gas industry, and therefore do not meet the selection criteria for absence of financial conflicts of interest and may not meet the selection criteria for absence of appearance of a lack of impartiality:

Burnett, David	Texas A&M University ^{xv}
Davis, Thomas	Colorado School of Mines ^{xvi}
Dunn-Norman, Shari	Missouri University of Science and Technology ^{xvii}
Economides, Michael	University of Houston ^{xviii}
Ensor, Katherine Bennett	Rice University ^{xix}
Olson, Jon	University of Texas ^{xx}
Reible, Danny	University of Texas ^{xxi}
Tutuncu, Azra	Colorado School of Mines ^{xxii}

- Other:

Almond, Stephen	MeadWestvaco
Barry, Terence	AquaMost
Cline, Scott Bradley	U.S. Internal Revenue Service
Curtright, Aimee	RAND Corporation
Klecka, Gary	Independent Consultant

Dr. Almond's current employer, MeadWestvaco, provides goods and services to the oil and gas industry^{xxiii}, and therefore he does not meet the selection criteria for absence of financial conflicts of interest and may not meet the selection criteria for absence of appearance of a lack of impartiality. Furthermore, as stated in his

biosketch, Dr. Almond, “...worked for Halliburton for over 30 years...” and therefore may not meet the selection criteria for absence of appearance of a lack of impartiality.

Dr. Barry’s current employer, AquaMost, provides services to the oil and gas industry^{xxiv} and therefore he does not meet the selection criteria for absence of financial conflicts of interest and may not meet the selection criteria for absence of appearance of a lack of impartiality.

Dr. Cline has made public statements^{xxv} that indicate he may have preconceived conclusions about the potential impacts of hydraulic fracturing on drinking water and ground water, and therefore he does not meet the selection criteria for absence of a lack of impartiality.

As stated in her biosketch, Dr. Curtright, “...was the organizer and technical lead for a conference on the technical, legal, and regulatory challenges to using coal mine drainage for hydraulic fracturing, sponsored by the Marcellus Shale Coalition...” According to their website, The Marcellus Shale Coalition “works with exploration and production, midstream, and supply chain partners in the Appalachian Basin and across the country to address issues regarding the production of clean, job-creating, American natural gas from the Marcellus and Utica Shale plays.”^{xxvi} All 11 of the Marcellus Shale Coalition’s executive board members^{xxvii} are high-ranking oil and gas industry employees and its board is composed of 45 oil and gas companies^{xxviii}. As such, Dr. Curtright may not meet the selection criteria for absence of financial conflicts of interest and absence of appearance of a lack of impartiality.

As stated in his biosketch, Dr. Klecka was employed by Dow Chemical Company for over 30 years. Dow Chemical Company manufactures chemicals used in the oil and gas industry.^{xxix} As such, Dr. Klecka may not meet the selection criteria for absence of financial conflicts of interest and absence of appearance of a lack of impartiality.

We support the nominations of the following individuals who have the requisite scientific and technical expertise, knowledge, and experience, are free of conflict, and we believe to be impartial:

Bales, Jerad	U.S. Geological Survey
Bank, Tracy	University of Buffalo
Boufadel, Michel	New Jersey Institute of Technology
Boyer, Elizabeth	Pennsylvania State University
Brantley, Susan	Pennsylvania State University
Dzombak, David	Carnegie Mellon University
Finkel, Madelon	Cornell University
Goldstein, Bernard	University of Pittsburgh

Goode, Daniel	U.S. Geological Survey
Henretig, Fred	University of Pennsylvania
Howarth, Robert	Cornell University
Ingraffea, Anthony	Cornell University
McKenzie, Lisa	Colorado School of Public Health
Muehlenbachs, Karlis	University of Alberta
Murdoch, Lawrence C.	Clemson University
Murphy, Eileen	Rutgers University
Paulson, Jerome	George Washington University
Ryan, Joseph	University of Colorado
Saiers, James	Yale University
Shapiro, Allen	U.S. Geological Survey
Swackhamer, Deborah	University of Minnesota
Thyne, Geoffrey	Science Based Solutions
VanBriesen, Jeanne	Carnegie Mellon University
Vengosh, Avner	Duke University
Williams, Mark	University of Colorado

At this time, we are neutral to all prospective nominees not listed above. These other nominees appear to be qualified, non-conflicted and impartial, but we do not have sufficient information to comment on their nominations at this time.

Thank you for your consideration of these comments.

Respectfully,

Briana Mordick
Staff Scientist
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ⁱ <http://www.all-llc.com/page.php?11>

ⁱⁱ <http://www.accutest.com/who-we-serve-petroleum-oil-and-gas.htm>; As stated in his biosketch, Dr.

Bagawandoss also serves as a member of the Marcellus Shale Coalition (see comments on Dr. Curtright).

ⁱⁱⁱ See, e.g. projects with Chesapeake Energy: <http://nemc.us/docs/2012/presentations/Tue-PM-ShaleGas-NancyColeman-8-7-12.pdf>, http://www.gwpc.org/sites/default/files/event-sessions/Coleman_Nancy.pdf

^{iv} As stated in his biosketch, Mr. Collins is a consultant to the oil and gas industry.

^v As stated in his biosketch, Mr. Erb is a consultant to the oil and gas industry.

^{vi} <http://www.hdrinc.com/markets/energy/oil-and-gas>

^{vii} <http://www.vistageoscience.com/exp/index.php?page=scl>

^{viii} <http://www.gastechnology.org/Expertise/Pages/SupplyExpertise.aspx>

^{ix} http://www.amec.com/sectors/oil_and_gas/oil_and_gas.htm

^x As stated in his biosketch, Mr. Malouta is currently a contract employee for Shell Oil and his research has been supported by funding from Shell Oil.

^{xi} <http://www.providenceeng.com/P/Industries/>

^{xii} As stated in his biosketch, Mr. Syed is a consultant to the oil and gas industry.

^{xiii} <http://www.fwbusinesspress.com/main.asp?SectionID=9&SubSectionID=34&ArticleID=19035>

^{xiv} <http://www.fwbusinesspress.com/main.asp?SectionID=9&SubSectionID=34&ArticleID=19035>

^{xv} The Global Petroleum Research Institute (GPRI) administers research funded by 12 major oil and gas companies: Anadarko, BP, BHP Billiton, Chevron, ConocoPhillips, ExxonMobil, Marathon, Shell, Statoil, and Total. According to its website, "...membership is open to any qualifying entity, with significant revenues from petroleum exploration and production activities..."

<http://www.pe.tamu.edu/gpri-new/home/about.htm>

^{xvi} The Colorado School of Mines (CSM) Reservoir Characterization Project (RCP) is an oil- and gas-industry sponsored research consortium, with current and/or past funding supplied by 55 oil and gas exploration and production companies and related service companies.

<http://geophysics.mines.edu/rcp/sponsors.html>

^{xvii} As stated in her biosketch, Dr. Dunn-Norman has received research funding from the American Petroleum Institute.

^{xviii} Dr. Economides is a former employee of Schlumberger, an industry leader in hydraulic fracturing services. The website of the University of Houston states that his "research efforts involve the optimization of the overall hydrocarbon production system from the reservoir, the wellbore and to the market." <http://www.chee.uh.edu/faculty/economides#research>

The website of SCA: Subsurface Consultants and Associates, LLC states that Dr. Economides is Managing Partner of Dr. Michael J. Economides Consultants, Inc. with clients including national oil companies. http://www.scacompanies.com/training_services/instructor_bios.html#mjeconomides

^{xix} As stated in her biosketch, Dr. Ensor has received funding from the Korean National Oil Company

^{xx} Dr. Olson is a former employee of Mobil. Dr Olson is a researcher and administrator of FRAC, the Fracture Research and Application Consortium, a research group at the University of Texas pursuing the goal of "Understanding and successfully predicting, characterizing, and simulating reservoir-scale structures". FRAC is financially supported by 20 oil and gas industry companies, as listed on its website. <http://www.beg.utexas.edu/frac/sponsors.php> As stated in his biosketch, Dr. Olson has received contracts for research from Shell and ExxonMobil Corporations.

^{xxi} As stated in his biosketch, Dr. Reible has received funding from Chevron.

^{xxii} As stated in her bio sketch, Dr. Tutuncu is a former employee of Shell and has received research funding from ExxonMobil Corporation, Hess Oil Company, Chevron, Shell, ENI, Statoil, Talisman, Halliburton, Schlumberger, Pemex, PlusPetrol and Venoco.

^{xxiii} <http://www.meadwestvaco.com/SpecialtyChemicals/OilfieldChemicals/index.htm>

^{xxiv} <http://www.aquamost.com/>

^{xxv} See, e.g. <http://www.anga.us/media-room/videos/hear-our-voices/scott-cline>, <http://eidmarcellus.org/blog/inexperienced-geologists-fracking-fantasies-obscure-facts/6027/>

^{xxvi} <http://marcelluscoalition.org/>

^{xxvii} <http://marcelluscoalition.org/about/executive-committee/>

^{xxviii} <http://marcelluscoalition.org/about/full-members/>

^{xxix} <http://oilandgas.dow.com/>